# Metering Improvement Plan

South Australia

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Government of South Australia

Department for Environment and Water

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# Table of Contents

# 1.0 Introduction

## 1.1 Context

The *Murray-Darling Basin Compliance Compact* (the Compliance Compact) is a collaborative, joint commitment by the Australian Government and Basin States. It aims to restore public confidence in water resource management in the Basin by providing transparency and accountability of surface and groundwater management and regulation, as well as a consistent approach to compliance and enforcement practices by governments across the Basin. The Compliance Compact was approved by Basin First Minister's at a Council of Australian Government's meeting on 12 December 2018.

The Compliance Compact sets priorities for action, and commits the Australian Government and Basin jurisdictions to work programs that will be reported on regularly and publicly.

Jurisdictions have committed to implementing individual Schedules of specific work programs which are tailored to ensure a comprehensive response to the relevant compliance review is undertaken and a focus on improvements to existing arrangements, or additional commitments necessary to meet the relevant review recommendations. South Australia's work programs are set out in Schedule 5 of the Compliance Compact.

Under Schedule 5, South Australia committed to reviewing its metering framework to require that, from 1 July 2019, all new and replacement meters are compliant with *Australian Standard AS4747 - Meters for non-urban water supply* (the National Metering Standards), where a suitable meter is available. South Australia also committed to developing a metering improvement plan under Schedule 5.

In addition, South Australia has committed to exploring opportunities to mandate telemetry for high risk sites and investigate technology (i.e. satellite technology) to enhance compliance activities.

The general priorities for action relating to metering and measurement that apply to all jurisdictions are set out in section 3, in the body of the Compliance Compact. Section 3.1 of the Compliance Compact requires a 'meter implementation plan' to be published by jurisdictions, outlining how they plan to meet sections 3.2 to 3.6 of the Compliance Compact. Sections 3.2 to 3.6 are outlined in Attachment 1 and include specific requirements relating to meter accuracy, meter coverage and data transmission, and make provisions for any exemptions to these requirements to be justified and documented.

## 1.2 Purpose of this document

In line with the requirements outlined above and as set out in the Compliance Compact, this document aims to provide:

- Documentation of the review of South Australia's metering framework in order to implement the National Metering Standards for new and replacement meters, to achieve action SA3.2 and SA3.3, within Schedule 5 of the Compliance Compact;
- A metering improvement plan, to comply with commitment SA3.8 of Schedule 5; and

- A meter implementation plan[1], to comply with section 3.1, within the body of the Compliance Compact.

Accordingly, this document includes the following sections:

- Review of metering framework – this section summarises the outcomes of a review, which considered South Australia's previous metering framework, the National Metering Standards (refer section 2 of this document) and the commitments South Australia has made to implement the national metering framework (refer section 3 of this document), to determine gaps or areas of improvement.

- Meter Improvement Plan – this section outlines the process used to develop the meter improvement plan (refer section 4 of this document) and the meter improvement plan strategies and outputs (sections 5 and 6 of this document).

  The Meter Improvement Plan, together with Attachment 1, doubles as a meter implementation plan, as required by section 3.1 of the Compliance Compact, and outlines how meter accuracy, meter coverage and data transmission objectives have been or are planned to be addressed by South Australia. Attachment 1 specifically provides a response to each of the actions in 3.2 to 3.6 of the Compliance Compact, which is a specific requirement of the meter implementation plan.

- Conclusion (refer to section 7 of this document).

# 2.0 Review of metering framework

In order to develop a metering improvement plan, the Department for Environment and Water (DEW) first reviewed South Australia's previous metering framework with consideration of the National metering framework (as detailed below), to determine gaps and area of improvement. The review outcomes are summarised and documented in this section below.

## 2.1 South Australian metering framework pre 1 July 2019

For the purposes of this review, South Australia's previous metering framework is the framework in place up until 30 June 2019, as documented below.

### 2.1.1 Legislation and Regulations

South Australia's legislative framework for water resources management includes the *Landscape South Australia Act 2019* (the Act) and the *Landscape South Australia (Water Management) Regulations 2020* (the Regulations). Administration of this framework is undertaken by DEW, reporting to the Minister for Environment and Water (the Minister).

[1] 'Meter implementation plans' are already in place in South Australia. These plans document specific metering requirements and exemptions for various prescribed areas. To avoid confusion, this document has been titled 'Meter Improvement Plan' and has a broader context.

Where deemed appropriate, a water resource can be prescribed in accordance with the Act, enabling the resource to be managed through water instruments (such as water licences) with the aim of keeping water use within sustainable limits. There are currently 26 prescribed water resources management areas in the South Australia.

Water allocation plans are developed for prescribed areas and provide the rules for allocating water, trading water and permitting of water affecting activities. This regulatory framework provides water users with a level of certainty in relation to their access to water.

It is a condition of the water management authorisation that the holder does not take greater than the available water allocation that is available on the water account and water meters are required to measure the quantity of water taken. A water account is monitored for all licensed water use and reconciled at least annually.

The Act states that the Governor may, by regulation, prescribe standards for meters used for the purpose of determining the quantity of water taken. These standards are included as Part 5 of the Regulations. The standards have been in place since 1997 (under previous legislation) and remained essentially unchanged until minor amendments were made in 2019, for clarification and to align with the National Metering Standards. These changes were made as a result of the meter framework review.

### 2.1.2 South Australian Meter Policy and Specifications

The Regulations refer to meters being compliant with *specifications approved by the Minister*. The *South Australian Licensed Water Use Metering Specification* (SA Meter Specification) outlines the detailed requirements for meter selection, installation, maintenance, meter reading and provision of advice to DEW.

Generally, the requirements in the previous SA Meter Specification (which was in place until 30 June 2019) aimed to ensure that all meter installations include:

- a robustly designed and built measurement element individually tested for accuracy (to plus or minus two per cent) in a NATA accredited laboratory and installed in accordance with manufacturer's instructions;
- the installation complies with relevant workplace, health and safety requirements;
- potential disturbances to the measurement element are eliminated (or minimised) by providing adequate entry and exit configurations; and
- the metering installation is maintained in working order (and at acceptable accuracy) by suitably qualified and *competent persons approved by the Minister*.

The overarching *South Australian Licensed Water Use Meter Policy* (SA Meter Policy) outlines South Australia's policy position on metering in general. In essence, the requirements of the SA Meter Policy are that:

- Meters are privately owned, purchased and maintained at the licence holders' cost;
- The small number of remaining Government-owned meters (approximately 300) are replaced at the licence holders' cost when they reach the end of their economic life; and

- All licensed water use is metered and the Meter Policy does not specify a volume or infrastructure size threshold below which metering is not required. Instead, a limited number of small volume, low risk metering exemptions are set out in meter implementation plans for each prescribed area and granted upon request (or where specified).

Both the SA Meter Policy and the SA Meter Specification have been in place, in various iterations, since 2003 and remained fundamentally unchanged in terms of meter accuracy, installation and maintenance requirements until 2019. As a result of DEW reviewing South Australia's metering framework, the Meter Policy and Meter Specification were reviewed and updated in 2019 to align with the National Metering Standards.

### 2.1.3 Compliance

*Responsibilities for water related compliance in DEW*

Water licensing compliance actions are coordinated through the Water Licensing Branch with all 57 staff involved in compliance activities, including customer education, direction letters, site visits and imposition of penalties, expiations etc. Amongst the 57 staff there are 14 officers dedicated to compliance, who are State Authorised Officers in accordance with the Act[2].

While the majority of compliance issues are dealt with and resolved within the Water Licensing Branch (through compliance escalation pathways), complex, protracted and/or high level compliance issues are referred to DEW's Compliance Unit (comprising specialist investigators) for formal investigation and recommended compliance and enforcement actions. Where matters are likely to be escalated to prosecution, they are referred to the Prosecutions Steering Committee (including representation from the Water Licensing Branch, the Compliance Unit and the Crown Solicitor's Office) for expert advice and recommendations to the Chief Executive of DEW and the Minister on whether to prosecute an alleged offender(s), or take alternate compliance action, and to make decisions throughout court proceedings on prosecution and civil enforcement measures.

*Compliance in relation to meter installations*

South Australia visits at least ten per cent of sites each year through a program of targeted and random compliance activities. Part of these compliance activities is checking the integrity of existing meter installations to ensure they remain compliant with the requirements in the Meter Specification. In addition, meter installations are checked when on staff are on site.

Where any non-compliance is detected by DEW officers, the holder of the water management authorisation is notified in writing and directed to rectify the non-compliance within a specified time period, to avoid compliance action under the Act. Further, meter accuracy testing is required if there is reason to suspect that a meter is not operating accurately (i.e. anomalous meter readings, poor meter or operating conditions, suspected faults). Where a meter is tested as inaccurate, the meter is required to be recalibrated (if viable) or replaced.

[2] Staff numbers are as at 1 July 2019.

On the basis of these practices, DEW has reasonable confidence that existing metering installations are compliant with South Australia's pre-existing metering requirements (pre 1 July 2019).

### 2.1.4 Meter coverage in South Australia

As stated above, the SA Meter Policy states that all licensed water use must be metered and any exemptions are to be documented in a meter implementation plan. Exemptions are granted in small volume, low-risk instances (i.e. inactive infrastructure or small stock and domestic users), upon request or where automatic flexibility is specified.

At the end of the 2018-19 water year, there were over 13,300 meters installed in South Australia. Table one below shows a breakdown of the number of water licences and meters in each prescribed area of the State, where licences have been issued.

**Table 1: Number of water licences and meters per prescribed area as at 1 July 2019[3]**

| Area | Licences | Meters |
|---|---|---|
| Angas Bremer Prescribed Wells Area (PWA) | 122 | 186 |
| Barossa Prescribed Water Resources Area (PWRA) | 445 | 552 |
| Chapmans Creek Prescribed Watercourse (PWC) | 1 | 0 |
| Clare Valley PWRA | 306 | 449 |
| Dry Creek PWA | 1 | 2 |
| Eastern Mt Lofty Ranges PWRA | 904 | 957[4] |
| Far North PWA | 86 | 0 |
| Little Para PWC | 13 | 1 |
| Lower Limestone Coast PWA (includes 158 forestry licenses) | 3,200 | 2,983 |
| Mallee PWA | 192 | 243 |
| Marne Saunders PWRA | 157 | 206 |
| McLaren Vale PWA | 472 | 526 |
| Middle Beach PWCs | 1 | 0 |
| Morambro Creek PSWA and PWC | 4 | 3 |
| Musgrave PWA | 10 | 8 |
| Northern Adelaide Plains PWA (including Kangaroo Flat area) | 1,309 | 1,068 |
| Padthaway PWA | 110 | 257 |
| Peake Roby and Sherlock PWA | 7 | 11 |

[3] Does not include the Central Adelaide PWA, Greenock Creek and Baroota PWRAs, where existing user water licences projects are not complete. Some water licences have multiple meters for different extraction points. Meters are currently not required in the Far North PWA, due to pressurised aquifer conditions requiring specialised and costly meter installations. DEW is currently considering future meter implementation for this area. Data current as at 1 July 2019.

[4] Low risk small dams exempted as documented in published meter implementation plan for this region.

| | | |
|---|---|---|
| River Murray PWC | 3,609 | 3,547[5] |
| Southern Basins PWA | 25 | 46 |
| Tatiara PWA | 400 | 629 |
| Tintinara Coonalpyn PWA | 119 | 239 |
| Western Mt Lofty Ranges PWRA | 2,232 | 1,418[6] |
| **Total** | **13,725** | **13,331** |

In terms of the make and model of meter types in South Australia, the previous SA Meter Specification allowed any meter to be installed, provided that it met stringent accuracy requirements of plus or minus two per cent accuracy. Previous studies[7] have indicated that South Australia's non-urban metering population is characterised by substantial diversity in make, model, type/technology and that the large majority of meters installed in South Australia are mechanical type meters.

## 2.2 National water metering framework

### 2.2.1 National Water Initiative

The National Water Initiative Agreement provides a comprehensive strategy for improving water resource management in Australia. The NWI Agreement was signed by South Australia and other participating jurisdictions at the 25 June 2004 meeting of the Council of Australian Governments (CoAG). At this meeting, CoAG reinforced the water reform objectives agreed in 1994 and noted the imperative of increasing the productivity and efficiency of water resource management.

The NWI Agreement seeks to achieve *a nationally-compatible, market, regulatory and planning based system of managing surface and groundwater resources for rural and urban use that optimises economic, social and environmental outcomes*[8], and commits the signatory governments to ensuring national standards for water measurement and metering are in place to support the NWI Agreement's objectives. Clause 88 of the NWI Agreement specifies that:

> *Recognising that information available from metering needs to be practical, credible and reliable, the Parties agree to develop by 2006 and apply by 2007:*
>
> *i) a national meter specification;*
> *ii) national meter standards specifying the installation of meters in conjunction with the meter specification; and*
>
> *iii) national standards for ancillary data collection systems associated with meters.*

The NWI also refers to a commitment to achieving consistent coverage of water metering. The requirements for metering coverage are set out in general terms in Clause 87 as:

[5] Licensed small (i.e. less than 5,000 kilolitres) stock and/or domestic extractions exempted as documented in published meter implementation plan in this region.
[6] Low risk small dams exempted as documented in published meter implementation plan for this region
[7] Source: *South Australian Implementation Plan NWI Non-urban Water Metering Standards*, 29 October 2008
[8] Paragraph 23, *Intergovernmental Agreement on a National Water Initiative,* COAG, 25 June 2004.

*The Parties agree that generally metering will be undertaken on a consistent basis in the following circumstances*

*i) for categories of entitlements identified in a water planning process as requiring metering;*
*ii) where water access entitlements are traded;*
*iii) in an area where there are disputes over the sharing of available water;*
*iv) where new entitlements are issued; or*
*v) where there is a community demand.*

### 2.2.2 National framework for non-urban water metering

The National framework for non-urban water metering policy paper (2009) (National Framework) was developed to provide a nationally consistent framework for non-urban water meters, enabling jurisdictions to implement national metering standards and achieve NWI objectives 87 (metering should be undertaken on a consistent basis) and 88 (development of a national meter specification and standards).

The policy paper provides for a practical, credible and reliable approach that provides national standards for meter construction, installation and maintenance, a Metrological Assurance Framework (the MAF), and implementation of the national standards through national measurement and water legislation. It also sets out auditing and reporting approaches that satisfy NWI objective 89.

The National Framework outlines that the key requirements for national metering (through the MAF) are all non-urban meters are:

- pattern approved;
- laboratory verified by a verifying authority;
- suited to the intended purpose, installation configuration and operating conditions;
- installed in compliance with pattern approval certificate and relevant standards;
- validated by a certified validator after installation;
- maintained periodically in accordance with the pattern approval certificate and relevant standards/specifications;
- periodically validated by a certified validator on an ongoing basis;
- re-verified by a verifying authority or certified licensee; and
- audited on a regular basis by water service providers, government agencies or independent auditors in accordance with implementation plans.

Under this framework, the National Measurement Institute (NMI) and Standards Australia are responsible for developing and maintaining standards and uniform testing procedures, and the NMI is responsible for appointing measurement laboratories to undertake pattern approval and initial verification testing, and for pattern approval of meters.

The National Framework also sets out 'grandfathering' arrangements whereby existing meters can be retained for a period following introduction of the new standards provided they meet certain criteria.

Consistent with the grandfathering provisions, it is South Australia's position that existing meters are exempt from the requirement to comply with the national metering standards as

they are a 'deemed compliant meter' installed in good faith to an interim standard deemed acceptable by the jurisdictional government.

### 2.2.3 South Australian Meter Implementation Plan - 2008

The National Framework requires each jurisdiction to develop an implementation plan for how it will implement the requirements of the National Framework. Accordingly, South Australia developed the *South Australian Implementation Plan - NWI Non-urban Water Metering Standards* (29 October 2008).

This Implementation Plan outlined that funding is necessary to undertake the actions required to implement the National Metering Standards in South Australia. At this time (and to date), South Australia has not received any funding for the implementation of the National Metering Standards. Given the existing regulations, policy and specifications were considered a satisfactory 'interim' specification, and the technical and practical impediments to implementation of the National Metering Standards (i.e. lack of pattern approved meters and lack of certified validators etc.), South Australia continued to operate under the interim specification until 2019.

This implementation plan also justifies South Australia's position to 'grandfather' existing meters, stating that:

- The standards for non-urban water metering implemented through the Act and Regulations and clarified through the Metering Policy and Meter Specifications are substantially similar to the requirements of the national metering standards, including basic accuracy requirements;
- Given there is only one mechanical meter currently pattern approved, it is clear that a large proportion of South Australia's existing meter fleet are unlikely to be meters that are currently pattern approved; and
- In light of the above, it is difficult to see additional benefits accruing to the State or to licensed water users that would be of sufficient magnitude to outweigh the costs of implementing the national metering standards to existing meters.

### 2.2.4 Australian Standards

As stated above, in accordance with the NWI and the National Framework, the NMI and Standards Australia are responsible for developing and maintaining standards and uniform testing procedures.

Accordingly, Standards Australia released the National Metering Standards. This document provides the detailed technical specifications for all non-urban water meters and builds upon the fundamental requirements outlined above from the National Framework, including:

- Technical requirements for closed conduit meters and open channel meters;
- Installation and commissioning of closed conduit and open channel meters;
- In-service compliance for closed conduit and open channel meters.

The NMI have also released a set of pattern approval testing specifications for non-urban water metering installations covering:

- *NMI M 10-1 (Parts 1 to 3 inclusive) - Meters Intended for the Metering of Water in Full Flowing Pipes.*
- *NMI M 11-1 (Parts 1 to 3 inclusive) - Meters Intended for the Metering of Water in Open Channels and Partially Filled Pipes.*

# 3.0 South Australia's metering commitments

Following a review of the South Australian and the National metering frameworks (section 2 above), a review of South Australia's commitments towards implementing national standards and other metering initiatives was undertaken.

Section 3 accordingly outlines South Australia's key commitments or priorities for action from the National Framework and the Compliance Compact in relation to metering and measurement.

## 3.1 'Grandfathered' existing meters (installed pre 1 July 2019)

Consistent with the grandfathering provisions in the National Framework and the obligations in both Schedule 5 and section 3 of the Compliance Compact, existing meters installed prior to 1 July 2019 are not required to comply with the national metering standards. This is because these meters are a 'deemed compliant meter' installed in good faith to an interim standard deemed acceptable by the South Australian government, as permitted under the National Framework.

This means that South Australia's existing meter fleet (i.e. installed or direct to be installed prior to 1 July 2019) remain 'grandfathered' until they require replacement. These meters, however, must continue to comply with the existing metering standards, which are considered to be of an appropriate standard. This approach recognises that customer upgrade of existing meters to the National Metering Standards may impose considerable burden and cost with minimal relative benefit.

## 3.2 New meters being AS474 compliant (installed post 1 July 2019)

Under Schedule 5 of the Compliance Compact, South Australia has committed to:

- SA 3.2: reviewing the South Australian metering framework to require that AS4747 meters be used where a suitable meter is available for all new and replacement meters, to be implemented from 1 July 2019, in the hope that this would help to foster demand for manufacturers to market compliant meters;
- SA 3.3: reviewing the South Australian metering framework by 30 June 2019, with a view to all new and replacement meters installed being AS4747 compliant where a suitable meter is available; and
- SA 3.8: reviewing the South Australian metering framework, including a metering improvement plan by 30 June 2019.

### 3.3 Exploring technology and telemetry

Under schedule 5, South Australia has also committed the following 'ongoing' activities:

- SA 2.11: exploring the potential benefits of utilising satellite technology (such as the internet of things or virtual water meter technology) to enhance compliance monitoring programmes as well as gain insight into crop/industry based irrigation practices; and
- SA 3.4: exploring opportunities to mandate telemetry for high risk extractions.

### 3.4 All meters – requirements to improve meter accuracy, coverage and data transmission

Section 3, in the body of the Compliance Compact, includes additional requirements for all meters and requires that jurisdictions publish a 'meter implementation plan' by 31 December 2018. This meter implementation plan must address particular requirements in sections 3.2 to 3.6 relating to meter accuracy, meter coverage and data transmission for both existing and new meters.

It should be noted that as part of negotiations for the Compliance Compact, South Australia has acknowledged that many of the actions in the body of the Compliance Compact (including section 3) involve significant cost and resources and have advised that South Australia included items in its schedule (Schedule 5) that could be reasonably achieved within existing budgets and resources.

Notwithstanding this, the additional requirements in section 3 of the Compliance Compact are outlined in Attachment 1.

## 4.0 The process to develop a Meter Improvement Plan

The meter improvement strategies and actions outlined in section 5 of this document were largely developed to ensure requirements SA 3.2 and SA 3.3 of Schedule 5 within the Compliance Compact (that all new and replacement meters are AS4747 compliant) have been integrated into the State's metering framework and implemented by 1 July 2019.

In addition to this, the meter improvement plan has also considered the additional commitments in SA 2.11 and SA 3.4 of Schedule 5 within the Compliance Compact (relating to technology) as well as the priorities for action relating to meter accuracy, coverage and data transmission in section 3 within the body of the Compliance Compact.

The meter improvement plan (and associated outputs) was developed by an internal 'working group' within DEW, comprised of water licensing officers, policy officers and compliance officers. These policies were subsequently reviewed, escalated for decision (if necessary) and vetted by Water Licensing Branch Leadership.

Internal and external stakeholders have been kept informed of the key improvement policies and changes and where legislative change has been required, consulted where necessary.

The review process operated under a 'Terms of Reference' document approved by the parties involved.

*Integration of 'meter implementation plan' required under section 3 of the Compliance Compact*

As stated previously, section 3.1 of the Compliance Compact requires a meter implementation plan to be developed addressing the requirements in 3.2 to 3.6, which relate to the themes of meter accuracy, meter coverage and data transmission (detailed requirements provided in Attachment 1).

The large majority of requirements in 3.2 and 3.6 have been considered or addressed when developing the strategies in this Meter Improvement Plan, particularly in relation to meter accuracy. Given this overlap, it is considered that the meter implementation plan could effectively and simply be integrated into this Meter Improvement Plan. To explicitly fulfil the requirements of the meter implementation plan, which requires that items 3.2 to 3.6 are addressed and any exemptions to these requirements justified, Attachment 1 has been added to this document.

To ensure the reader can easily identify and reference how South Australia plans to achieve improvements to the 'themes' that the meter implementation plan is required to address in sections 3.2 to 3.6 of the Compliance Compact, each of the themes (meter accuracy, meter coverage and data transmission) is described in section 5 below.. These themes are also relevant to meter improvement strategies.

It is considered that the approach outlined above will mean that this document serves as both a meter improvement plan and meter implementation plan under Schedule 5 and section 3 of the Compliance Compact, respectively.

# 5.0 Meter Improvement Plan Strategies

Metering improvement strategies have been broadly categorised into the following metering and measurement themes outlined in section 3 of the Compliance Compact:

1. Meter accuracy -
    - AS474 compliant new meters
    - Improved rigour for existing meters;
2. Meter coverage; and
3. Transmission of data (telemetry) and use of technology.

Further detail on the strategies and policies aimed to achieve each of these themes are outlined below.

## 5.1 Meter accuracy - AS4747 compliant new meters

To improve meter accuracy and ensure all new meters are compliant with the National Metering Standards, from 1 July 2019, South Australia has adopted the following strategies for any new or replacement meter:

- Meters must be pattern approved;
- Meters must be fit for purpose (suited to the intended purpose, installation configuration and operating conditions);
- Meters must be installed in compliance with national standards;

- Meters must be validated by a certified person following installation;
- Meters must be maintained in accordance with the national metering standards. This includes:
    - a certified person[9] must perform certain maintenance work if accuracy of the meter may be, or has been, affected;
    - using a certified person to validate the meter installation if installations are changed or affected by maintenance;
    - testing of a meter where it is necessary to do so to confirm meter accuracy (and further definition around when a meter is required to be tested);
    - a 5-yearly 'condition inspection' (or validation) of the meter and installation, requiring evidence (i.e. checklists, photographs) to demonstrate that the meter is compliant and in good working order.

In addition to the above, from 1 July 2019, South Australia has introduced the following state-wide policies, which will apply to new and replacement meters:

- Explicit requirements to report and repair/replace faulty meters within certain timeframes;
- Improved and transparent meter replacement policies to promote and require upgrade to AS4747 compliant meters for meters that are non-compliant, have reached the end of their functional life or to address and prevent tampering;
- Annual inspections of the meter and installation to ensure it is in working order, the site is accessible and seals are intact; and
- Improved and transparent requirements to advise the Department when a meter is installed, validated, repaired, replaced, removed, tested, a fault is suspected or identified or a 5-yearly inspection is performed.

## 5.2 Meter accuracy - Improved rigour for existing meters

South Australia has introduced the following strategies to improve meter accuracy and rigour for existing meters, from 1 July 2019:

- Requirement for meters to be fit for purpose (suited to the intended purpose, installation configuration and operating conditions);
- Explicit requirements to report and repair/replace faulty meters within certain timeframes;
- Improved and transparent meter replacement policies to promote and require upgrade to AS4747 compliant meters for meters that are non-compliant, have reached the end of their functional life or to address and prevent tampering;
- Improved maintenance requirements including:
    - Annual inspections of the meter facility to ensure it is in working order, the site is accessible and seals are intact;
    - A 5-yearly 'condition inspection' (or validation) and maintenance on the meter facility; and
    - a requirement to provide evidence (i.e. checklists, photographs) to demonstrate that the meter is compliant and in good working order;

[9] A certified person is someone holding a current certificate issued by Irrigation Australia certifying that the person is qualified as a meter installer and validator.

- Improved and transparent meter accuracy testing policies to ensure it is clear when a meter is required to be tested to confirm accuracy, how it is to be tested and when it is permitted to be reinstalled;
- Improved and transparent requirements to advise DEW when a meter is installed, validated, repaired, replaced, removed, tested, a fault is suspected or identified or a 5-yearly inspection is performed;
- Incorporate compliance checking of existing meter installations with a view to address non-compliance and also seal[10] meters and meter installations. This program will be built into DEW's targeted compliance monitoring program and other site visits and is to focus on high risk meter installations (i.e. large volume meters, aged meters, poor water quality or at risk water resources); and
- Requirement for seals to be replaced when broken.

## 5.3 Meter coverage

In accordance with the SA Meter Policy, all licensed water use is required to be metered and there is no volume or infrastructure size threshold below which metering is not required. Accordingly, South Australia's default metering position is that all licensed sources are metered.

Exemptions to the default metering position are set out in meter implementation plans for each prescribed area based on regional implementation issues and can be granted upon request (or where specified). These exemptions are based on a small, limited number of low risk and small volume extractions (such as stock and domestic extractions, where accounting can be otherwise estimated or inactive infrastructure where it can be demonstrated that there is no ability to take water).

Given that all licensed water use is already required to be metered across the State, and exemptions are considered appropriate, there is no need for South Australia to improve meter coverage.

The following table (table 2) outlines where a meter implementation plan has been published or requires development for each prescribed water resources area in which water instruments have been issued.

**Table 2: Status of meter implementation plans for each prescribed water resources area**

| Prescribed Area | Status of Meter Implementation Plan |
|---|---|
| River Murray PWC | Published |
| Eastern Mount Lofty Ranges PWRA | Published |
| Western Mount Lofty Ranges PWRA | Published |
| Central Adelaide PWA | Published |

[10] Meter seals protect meter accuracy by ensuring that components of the meter facility that may affect meter accuracy cannot be removed without being visibly identified

| | |
|---|---|
| Barossa PWRA | Published |
| Mallee PWA | Published |
| Peake, Roby and Sherlock PWAs | Published |
| Southern Basins and Musgrave PWAs | Published |
| Clare Valley PWRA | Published |
| Marne Saunders PWRA | Published |
| Far North PWA | Requires development |
| McLaren Vale PWA | Requires development |
| Northern Adelaide Plains PWA | Requires development |
| All PWA's within the South East NRM region | Requires development |
| Morambro Creek PSWA and PWC | Requires development |

DEW plans to undertake the following to complete the process of publishing any metering exemptions:

- Publish already drafted meter implementation plans; and
- For any areas where a meter implementation plan is yet to be developed, review regional meter implementation issues, identify any exemptions and develop and publish meter implementation plans.

## 5.4 Transmission of data (telemetry) and use of technology

It is an existing requirement of the SA Meter Specification that installations are capable of being fitted with an electronic output device, or the meter itself, is capable of data transmission. This requirement has been retained in the current Meter Specification, which ensures that all existing and future meter installations are capable of data transmission.

South Australia will not be mandating automatic data transmission at the present time. It is considered that automating the reporting of water take is a costly exercise and constitutes a reasonably significant cost burden to water instrument holders. Given that South Australia already requires metering for all licensed water use across the State, for which there is an established and well-functioning meter reading program already in place (in which quarterly, rather than annual, meter reads are required for high risk areas, including the entire River Murray Prescribed Watercourse) it is considered that there is an existing level of confidence in water accounting and measurement in South Australia. In light of this, it is considered that automation of data transmission would provide minimal benefit for the relative customer costs.

For this reason, as outlined in Schedule 5 of the Compliance Compact, South Australia has actively been pursuing funding and opportunities to mandate telemetry for high risk extractions and the use of technology to enhance compliance monitoring programs. To date, South Australia has put forward four bids for funding, of which all four have been unsuccessful. These bids have included requests to fund telemetry and the use of technology to:

- detect meter reading anomalies and potential non-compliance; and
- detect potential non-compliance through comparison of irrigated areas and theoretical requirements with actual meter readings.

South Australia will continue to seek funding opportunities to explore technology (such as telemetry) to enhance compliance programs.

## 6.0 Meter Improvement Plan outputs

As a result of the strategies outlined in the Meter Improvement Plan, a number of outputs and actions are required to give effect to these strategies and implement them. The table below (table 3) outlines these outputs, associated timeframes for delivery and a status as at 1 July 2019).

**Table 2: Meter Improvement Plan outputs and respective timeframes**

| **Output** | **Expected Timeframe** | **Status as at 1 July 2019** |
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| New Regulations to align them with the national metering standards entitled '*Natural Resources Management (Financial Provisions) Regulations 2005*' (now reflected in the Landscape South Australia (Water Management) Regulations 2020) | By 1 July 2019 | Completed |
| New SA Meter Policy to reflect implementation of National Metering Standards | By 1 July 2019 | Completed |
| New SA Meter Specification reflecting the national metering standards for meters installed after 1 July 2019 and to reflect the new state-wide meter improvement strategies that will apply to *all* meters stated in 5.1 and 5.2 above. | By 1 July 2019 | Completed |
| Changes to the 2019-20 and future targeted compliance monitoring programs and other compliance programs to incorporate compliance checking of existing meter installations to address non-compliance and improve compliance and accuracy of existing | From 1 July 2019 - ongoing | Commenced/ongoing |

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| meter fleet | | |
| Ensure DEW staff undergo appropriate training to become certified persons to perform meter validations under the national metering standards | May 2019 and ongoing as required | Completed |
| Development of associated online and hard copy forms to implement the National Metering Standards and meter improvement plan strategies (i.e. meter validation certificates, online meter notification form) | Necessary changes completed by 1 July 2019 and remaining to be staggered considering respective timing of each change and resourcing availability. | Commenced, partially completed |
| Changes to existing and proposed ICT systems to implement the National Metering Standards and meter improvement plan strategies (i.e. proposed changes to new Water Management Solutions ICT system). | ICT requirements for new WMS system to be communicated by July 2019 to ensure they are included 'in scope' for the system. WMS planned to be operational mid-2021. | On track |
| Prepare and conduct education and awareness on the national metering standards both intra and inter-agency, with water licensing customers and with meter manufacture and retail industry to:<br>• Promote awareness of the introduction of the national metering standards for all stakeholders;<br>• Facilitate 'industry-readiness' by giving advance warning of the changes to enable training and certifications to be granted to increase numbers of certified persons (to perform validations) and | Commenced March 2019<br>Follow up advice in June 2019<br>Specific communication regarding new requirements with meter manufacture and retail industry to | Commenced/on track |

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| enable meter manufacturers and retailers to stock pattern approved meters in readiness. | occur by 31 December 2019 | |
| Prepare and publish remaining meter implementation plans | To be staggered over time with some meter implementation plans being delayed pending water allocation plans – to be completed by June 2025 in line with Compliance Compact commitment | On track |
| Continue to explore opportunities for telemetry and technology. | Ongoing | N/A |

## 7.0 Conclusion

South Australia has had a robust legislative and regulatory framework for meter accuracy and coverage for over two decades and under this framework, has confidence that the State's meter fleet complies with state-wide requirements and appropriately accounts for licensed water use across the State.

In line with commitments made under the Compliance Compact, South Australia has recently reviewed its metering framework and prepared a meter improvement plan. This plan aims to achieve the key requirement that new meters installed after 1 July 2019 are AS4747 compliant in schedule 5 of the Compact and aims to demonstrate how the State plans to improve its metering framework in relation to meter accuracy, meter coverage and data transmission (telemetry).

It is considered that the approaches adopted in this meter improvement plan will result in improved accuracy of water metering, reduce and improve detection of any tampering of meters and promote upgrade of existing meters to AS4747 compliant meters across the State's meter fleet whilst minimising customer cost burden. It is expected that with these strategies implemented and assuming grandfathering arrangements remain in place, that the vast majority of meters will be upgraded to AS474 compliant meters within the next 15 years (i.e. by 2034).

The positions formulated in the meter improvement plan have and will result in a range of outputs, including legislative and regulatory change, improvements to systems and processes and training and education.

## Attachment 1: Extract from section 3 of the Compliance Compact and South Australia's response to requirements 3.2 to 3.6

| | **Requirements to be addressed in meter implementation plan in section 3 of Compliance Compact** | **South Australia's response** |
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| | Each **Basin State** will publish a metering policy and implementation plan addressing 3.2-3.6 below. | Attachment 1 (this table) constitutes the implementation plan that addresses 3.2 to 3.6 below. |
| 3.2 Meter accuracy | (i) All new and replacement meters must comply with AS4747 including pattern approval and verification, by no later than June 2025. | South Australia has implemented a new South Australian Licensed Water Use Meter Specification which requires that all new and replacement meters are AS4747 compliant, including pattern approval and verification, from 1 July 2019 (see explanatory statement of Meter Specification). |
| | (ii) Commencing immediately, and until June 2025:<br>a. All new and replacement meters to comply with AS4747 where available.<br>b. Where an AS4747 compliant meter is not available the use of an interim meter that has been verified with a manufacturer's certificate of accuracy to within +/- 5% is acceptable. | a. South Australia has implemented a new South Australian Licensed Water Use Meter Specification which requires that all new and replacement meters are AS4747 compliant from 1 July 2019 (see explanatory statement of Meter Specification).<br>b. Where an AS4747 meter is not available, it is State Policy that the interim meter must be verified with a manufacturer's certificate of accuracy to within +/- 2.5%, in line with AS4747. This requirement has been introduced from 1 July 2019 and the policy is documented at the question 'are there any exemptions to the requirement to install a pattern approved meter' in the Frequently Asked Question: South Australia's metering framework document. |
| | (iii) When an existing meter no longer meets +/- 5% accuracy in the field it must be repaired and validated so that it is accurate to within +/- 5% in the field, or replaced | (iii) The following strategies are being introduced from 1 July 2019 to ensure inaccurate meters are identified, repaired and can only be used if within +/ - 5 percent. These provisions apply to all meters:<br>• Where it is suspected that a meter is not operating within required accuracy limits of +/- 5%, the meter is required to be tested, if required, repaired and |

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| | (see 3.2(i)). | only reinstalled if it is within accuracy limits of +/-4% if tested in a laboratory (or +/-5% if tested in-situ). Meter accuracy testing is required where tampering is suspected or identified, where meter seals are broken by an unauthorised person, where certain maintenance work which may affect meter metrology is undertaken by a non-authorised person or where there is any other reason to suspect meter accuracy is outside of acceptable accuracy limits (i.e. anomalous meter readings, condition and age of the meter). It is State policy that the testing occur in a laboratory to provide accurate and reliable results, given there is not the same level of confidence or reliability in current in-situ testing methods. Laboratory testing, as opposed to validation, is able to actually identify the accuracy of the meter; so it is accordingly considered that South Australia's approach to testing (rather than validation) provides an increased level of assurance on meter accuracy than this requirement requires (see section 5 of the specification regarding testing);<br>• South Australia's meter replacement policy states that a meter can be directed to be replaced by the Minister (or repaired to within acceptable accuracy limits) if deemed necessary by DEW using a combination of factors including age, wear, life expectancy, condition of the meter, operating conditions etc. This provides an option, additional to meter testing outlined in the point above, to address meter accuracy concerns or issues (see section 5 of the specification);<br>• South Australia has introduced an improved and more transparent 'faulty meter' process requiring faults to be reported within 48 hours and repairs (including testing if required) be undertaken within 28 days (see section 5 of the specification);<br>• Annual 'checks' to ensure the meter appears to be in good working order are also required, in addition to 5 yearly condition inspections and repairs, to provide added checks and balances for all meters to ensure they are compliant and faults, servicing requirements and any issues that could affect meter |

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| | | accuracy are identified early and rectified (see section 5 and appendix a of the specifications);<br>• For meters installed post 1 July 2019, these meters are subject to ongoing validation requirements whenever there is a change to a meter or its installation which may affect meter accuracy; and<br>• Lastly, as part of South Australia's compliance strategy it is expected that existing meter installations (particularly high risk) will be targeted as part of compliance monitoring activities so that the Department can undertake their own validations of meter installations and direct testing, repairs or replacement as required.<br>In light of the above, it is considered that there are multiple and comprehensive means to identify if an existing meter is not operating correctly and to have the meter tested, repaired or replaced to ensure any accuracy issues are addressed.<br><br>South Australia will not be requiring mandatory default testing of <u>all</u> existing meters to determine if they are within +/-5% accuracy for the following reasons:<br>• There is reasonable confidence in the accuracy of meters installed <u>pre 1 July 2019</u> as these meters have been installed and maintained in accordance with previous South Australian metering regulations, policy and specifications (which are an acceptable 'interim' standard for grandfathered meters under the National Framework for non-urban water metering) which have more stringent accuracy requirements than the national metering standards, are required to be installed to manufacturers specifications and are checked by DEW officers to ensure compliance following installation and as part of random and targeted audits on an ongoing basis. Given these meters are 'grandfathered' (and therefore are exempt from validation requirements) and there is reasonable confidence in the accuracy and compliance of these meters, it is not considered reasonable to impose the cost of testing a meter unless there was reason to suspect the meter was not operating accurately. As stated above, there are multiple and comprehensive means to identify if an existing meter is not operating correctly |

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| | | and to have the meter tested, repaired or replaced to ensure any accuracy issues are addressed;<br>• There is confidence in the accuracy of meters installed post 1 July 2019 as these meters must be pattern approved, validated upon installation and subject to ongoing validations whenever accuracy may be affected. In addition, these meters are also subject to the policies stated above which outline multiple and comprehensive means to identify if an existing meter is not operating correctly and to have the meter tested, repaired or replaced to ensure any accuracy issues are addressed; and<br>• There is currently no reliable, accurate and repeatable testing method available for in-situ testing of a meter currently which means costly laboratory testing would be necessary. In light of the above risks, this is not considered a reasonable cost impost for licensees. |
| | (iv) All meters to be periodically validated consistent with the requirements of AS4747. | Meters installed post 1 July 2019<br>The following requirements were introduced from 1 July 2019 to address the 'periodic validation' commitment:<br>• Meters installed after 1 July 2019 are required to be periodically validated by a certified person where any feature of a meter facility (that may affect meter accuracy) has been affected by maintenance or work (see section 4 of the specification);<br>• Validations by an accredited validator are also required every 5 years OR condition inspections performed by the entitlement holder are also accepted every 5 years. These condition inspections are to ensure a meter and its installation is still compliant, to identify any maintenance or repair work that is required and to verify that all seals remain intact and unchanged. As part of the condition inspection, the entitlement holder must provide evidence (i.e. signed declarations and photographs) that the meter and installation is compliant and seals are intact, enabling DEW to check compliance. If seals are broken or |

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| | | changed by the licence holder or the meter installation is non-compliant, it will require a validation performed by an accredited validator. Further if repairs are required, these must be performed by a validator or appropriate professional. This approach still enables regular checks of meter installations but takes risk and cost into consideration - acknowledging the cost burden on customers to engage validators, particularly in remote locations, when the value of a validation is minimal and low risk as there has been no change to the installation, seals are intact and basic checks of the meter are performed (see section 5 and appendix a of the specification).<br><br>It is considered that the above aligns with the mandatory 'validation' requirements of AS4747.<br><br><u>Meters installed pre 1 July 2019</u><br>These meters are 'grandfathered' under an acceptable interim standard, as permitted under the National Framework for Non-Urban Water Metering, and are therefore exempt from the mandatory requirement to perform validations by a nationally accredited certified person. |
| | (v) Any exemptions to 3.2(i) to 3.2(iv) made by the state to be supported by a justification published on the relevant state agency website. | Exemption statement (with justification) is outlined below:<br><br>1. **Grandfathered meters** are exempt from pattern approval requirements and other AS4747 requirements including mandatory validations. This includes being exempt from (i), (ii), the validation requirements in (iii) and periodic validations in (iv).<br><br>The justification for exempting grandfathered meters is because:<br><br>• It is permitted under the National Framework for non-urban water metering and all communications with water management authorisation holders is that they are exempt from the requirements of the National Standards;<br>• Outlined in 3.2(iii) above. |

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| | | 2. In accordance with section 1.1 of South Australia's Licensed Water Use Meter Policy, all licensed water use must be metred by default. Exceptions to metering are documented in meter implementation plans, as per 1.7 of the Meter Policy. These meter implementation plans are published on DEW's Metering water use web page, just below the link to the 'Best practice Guidelines for Minimum Metering Thresholds' (as mentioned in the MDBA's assessment summary), under the heading 'Further Information'. The justification for exempting metering in these instances will be written into relevant meter implementation plans by 30 June 2020. |
| 3.3 Meter coverage | (i) All take via water entitlements to be metered by June 2025, and a plan for achieving this.<br><br>(ii) Any exemptions to 3.3(i) made by the state to be supported by a justification, such as a regulatory impact assessment, published on the relevant state agency website.<br><br>(iii) The basis upon which meter thresholds have been set. | (i) In accordance with Section 1.1 of South Australia's Licensed Water Use Meter Policy, all licensed water use must be metered by default. Exemptions to metering are documented in meter implementation plans, as per 1.7 of the Meter Policy. These meter implementation plans are published on DEW's Metering water use web page, just below the link to the 'Best practice Guidelines for Minimum Metering Thresholds' (as mentioned in the MDBA's assessment summary), under the heading 'Further Information'.<br><br>(ii) Exemptions are limited to low risk, small volume extractions and are not based on a 'blanket' volume or infrastructure size threshold. These thresholds include small volume stock and domestic use, inactive infrastructure or where the take from multiple sources can be effectively and robustly metered through a single source. The justification for exempting metering in these instances will be written into relevant meter implementation plans by 30 June 2020.<br><br>(iii) As stated above, there are no 'blanket' metering thresholds but small volume, low risk exemptions are outlined in meter implementation plans. The basis for these exemptions are consistent with the 'Best practice guidelines for minimum metering thresholds' as detailed in 3.3 below. |
| 3.4 | (i) A program to progressively automate the | It is South Australia's position that automating the reporting of water take is a costly |

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| | reporting of water take, regardless of how that is measured, no later than 2025.<br><br>(ii) Any exemptions to 3.4(i) made by the state to be supported by a justification published on the relevant state agency website. | exercise, which, in many instances, would constitute a reasonably significant cost burden to water instrument holders, particularly smaller or marginal enterprises. Given South Australia already requires metering for all licensed water use across the State, for which there is an established and well-functioning meter reading program for all meters already in place (in which quarterly, rather than annual, meter reads are required for high risk areas, including the entire River Murray) it is considered that there is an existing level of confidence in water accounting and measurement in South Australia. In light of this, it is considered that automation of data transmission would provide minimal benefit for relative customer cost. For this reason, as outlined in Schedule 5, South Australia has committed to exploring funding opportunities and has been, and continues to, actively pursue these opportunities.<br><br>The plan to progressively automate the reporting of water take is to:<br><br>1. Continue to actively pursue funding opportunities to enable the trial and 'rollout' of telemetry across the Basin;<br>2. Should funding be obtained, prioritise the automation of the reporting of water take from the River Murray Prescribed Watercourse. More specifically the following extractions will be telemetered in order of priority:<br>3. Funding opportunities will be focused on high risk take as a priority, in line with these requirements:<br>a. High priority – size range of pipe work is between 225 to >500 mm<br>b. Medium priority – size range of pipe work is between 125 to 200 mm<br>c. Low priority – size range of pipe work is between <50 to 100 mm<br>d. Exempt – offtakes which are exempt from metering under the River Murray Meter Implementation Plan<br>4. Should funding not be secured, all licensed water sources are exempt from the requirement to install telemetry. However, it is a requirement that all meters installed in South Australia are required to be capable of being fitted with an electronic output device. Refer to appendix B Section 1.12 of the Licensed Water Use Meter Specification. |

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| 3.5 | The highest risk take, including large users in the Barwon–Darling, to be accurately metered by December 2019 and will publish what constitutes highest risk in their metering policies. High risk take should also be telemetered by December 2019 with any exemptions published. | South Australia's position is that all licensed water use must be metered and only low risk extractions are to be exempted. This position is outlined in the South Australian Licensed Water Use Metering Policy (see section 1.1 and 1.7 of the Policy. Exemptions are limited to certain low risk scenarios and are outlined in meter implementation plans for each prescribed area. There are only three prescribed water resources areas where meter exemptions apply. These are the River Murray Prescribed Watercourse, the Eastern Mount Lofty Ranges and the Western Mount Lofty Ranges Prescribed Water Resources Areas. The Western Mount Lofty Ranges is outside of the Basin.<br><br>These links provide the 'low risk' exemptions and by default, all remaining take must be metered whether it is considered low, medium or high risk. Given all take must be metered, regardless of risk, it is not considered necessary to publish what constitutes high risk take with regard to metering requirements. This would likely cause confusion and concern with water users who have already metered and may lead to a perception that different rules will apply to the listed 'high risk' meters, when in fact, rules are consistently applied to all meters (with the exception of those very few low risk exemptions in meter implementation plans).<br><br>In relation to telemetry, it is South Australia's position that automating the reporting of water take is a costly exercise, which would constitute a reasonably significant cost burden to water instrument holders, particularly smaller or marginal enterprises. Given South Australia already requires metering for all licensed water use across the State, for which there is an established and well-functioning meter reading program for all meters already in place (in which quarterly, rather than annual, meter reads are required for high risk areas, including the entire River Murray) it is considered that there is an existing level of confidence in water accounting and measurement in South Australia. In light of this, it is considered that automation of data transmission would provide minimal benefit for relative customer cost. For this reason, as outlined in Schedule 5, South Australia has committed to exploring funding opportunities and has been, and continues to, actively pursue these opportunities. Funding opportunities will be focused on high risk take as a |

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| | | priority, which is defined as offtakes of a size of 200 mm or greater.<br><br>It is South Australia's position that until funding is secured, all licensed water sources are exempt from the requirement to install telemetry. It should be noted that it has been an existing requirement to date (and going forward) that all meters have provision for telemetry to enable retrofitting or telemetry compatibility in future. This will provide a lower cost option to deliver telemetered metering without necessary upgrade of the meter itself and will enable a greater number of telemetered sites should funding be sourced. |
| 3.6 | A timetable for the installation of new meters and telemetry, and auditing and maintenance of the metering fleet to meet the above requirements | <u>Timetable for installation of new meters</u><br>From 1 July 2019, all new and replacement meters must be AS4747 compliant. Meters must be replaced at the end of their functional life or can be directed to be replaced by DEW if deemed necessary (i.e. the meter is suspected to be not functioning properly or requires replacement because of age, poor condition etc.). Meters installed prior to 1 July 2019 are 'grandfathered' under an acceptable interim standard, as permitted under the National Framework for non-urban water metering, and are therefore exempt from AS4747. There is currently no enforced 'end date' to grandfathering arrangements, with this date being subject to the upcoming MAF (Metrological Assurance Framework) review. Once a new 'end date' to grandfathering is agreed to, South Australia will work to ensure existing meters are upgraded to AS4747 compliance by this time.<br><br><u>Timetable for installation of telemetry</u><br>With regards to telemetry, it is South Australia's position that automating the reporting of water take is a costly exercise, which would constitute a reasonably significant cost burden to water instrument holders, particularly smaller or marginal enterprises. Given South Australia already requires metering for all licensed water use across the State, for which there is an established and well-functioning meter reading program for all meters |

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| | | already in place (in which quarterly, rather than annual, meter reads are required for high risk areas, including the entire River Murray) it is considered that there is an existing level of confidence in water accounting and measurement in South Australia. In light of this, it is considered that automation of data transmission would provide minimal benefit for relative customer cost. For this reason, as outlined in Schedule 5, South Australia has committed to exploring funding opportunities and has been, and continues to, actively pursue these opportunities. It has been an existing requirement to date (and going forward) that all meters have provision for telemetry to enable retrofitting or telemetry compatibility in future. This will provide a lower cost option to deliver telemetered metering without necessary upgrade of the meter itself and will enable a greater number of telemetered sites should funding be sourced.<br><br>Until SA has secured funds it is impossible to provide a timeframe for the installation of telemetry. SA continues to actively pursue funding opportunities to enable the 'roll out' of telemetry across the River Murray Prescribed Watercourse.<br><br><u>Timetable for maintenance and auditing</u><br>In relation to maintenance and auditing of the meter fleet – the following strategies came into effect on 1 July 2019 (some are enhanced pre-existing strategies):<br>• All meters must be inspected annually and declared to be operating correctly and seals intact by the entitlement holder (see section 5 and appendix A of the South Australian Licensed Water Use Meter Specification 'the Specification')<br>• All meters are subject to a condition inspection every 5 years performed by the entitlement holder (or alternatively a validation by an accredited validator) and repairs/servicing if necessary to ensure they are maintained in good working order (see section 5 and appendix A of the specification). DEW will require photographs and declarations as part of these condition inspections in order to perform compliance checking that meters and their installations are compliant and seals intact.<br>• For meters installed post 1 July 2019, they are subject to validations when a meter |

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| | | installation is changed which may affect metrology of the meter (see section 4 of the specifications).<br>• If seals on any meter register are broken by an unauthorized person or there is reason to suspect the meter is not operating correctly, the meter must be tested in a laboratory (see section 5 of the specifications) to ensure it still operates within permissible accuracy limits.<br>• As part of South Australia's compliance strategy it is expected that existing meter installations will be targeted as part of compliance monitoring activities so that the Department can undertake their own validations of meter installations and direct testing, repairs or replacement as required. |